

ABSTRACT OF THE DISCLOSURE

The present invention involves a method of preparing a reinforced polymer providing improved mechanical properties. The method includes providing particles of the layered silicate and a supercritical fluid. The method further includes mixing the layered silicate with a polymer to form a treatable silicate-polymer mixture and contacting the treatable mixture with the supercritical fluid to exfoliate the silicate particles so that the particles disperse within the polymer. The method further includes depressurizing the contacted mixture to exfoliate the layered silicate so that the layers are substantially dispersed within the polymer to define a reinforced polymer.